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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,948	08/10/2006	Heiko Urtel	12810-00340-US1	2462
30678 7590 05/23/2011 CONNOLLY BOVE LODGE & HUTZ LLP 1875 EYE STREET, N.W. SUITE 1100 WASHINGTON, DC 20006				
EXAMINER				
NGUYEN, COLETTE B				
ART UNIT		PAPER NUMBER		
1732				
MAIL DATE		DELIVERY MODE		
05/23/2011		PAPER		

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HEIKO URTEL, MARKUS ROSCH,
and ANDREA HAUNERT

Appeal 2010-007267
Application 10/588,948
Technology Center 1700

Before ADRIENE LEPIANE HANLON, LINDA M. GAUDETTE, and
KAREN M. HASTINGS, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision² finally rejecting claims 1-5 and 7-21 under 35 U.S.C. §103(a) as unpatentable over Kitson (US 4,985,572, issued Jan. 15, 1991) in view of Antons (US 5,731,479, issued Mar. 24, 1998).^{3, 4} We have jurisdiction under 35 U.S.C. § 6(b).

¹ An oral hearing was held on May 11, 2011.

² Final Office Action mailed Apr. 2, 2009.

³ Appeal Brief filed Nov. 30, 2009 ("App. Br.").

We AFFIRM.

Appellants' arguments in support of patentability are directed to limitations found in claim 1, the sole independent claim, which is reproduced below from the Claims Appendix to the Appeal Brief:

1. A process for preparing optically active hydroxy-, alkoxy-, amino-, alkyl-, aryl- or chlorine-substituted alcohols or hydroxy carboxylic acids having from 3 to 25 carbon atoms or their acid derivatives or cyclization products, the process comprising hydrogenating a substituted optically active mono- or dicarboxylic acid or acid derivative thereof in the presence of a catalyst whose active component comprises a noble metal selected from the group consisting [sic] of Pt, Pd, Rh, Ir, Ag, and Au and at least one further element selected from the group consisting of Sn, Ge, Mo, W, Ti, Zr, V, Mn, Fe, Co, Ni, Cu, Zn, Ga, In, Pb, Bi, Cr, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu,

wherein the substituted optically active mono- or dicarboxylic acid or acid derivative thereof has at least one stereocenter in the α - or β -position to at least one carboxylic acid function or acid derivative function to be hydrogenated.

The remaining appealed claims will stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii).

The issues we consider in this appeal are whether the Examiner reversibly erred in concluding that claim 1 would have been obvious in view of the combined teachings of Kitson and Antons because, as Appellants

⁴ In their Appeal Brief, Appellants advise that a terminal disclaimer was filed in order to overcome the only other outstanding ground of rejection: claims 1, 2, 8, 10, 12-14, and 18 on the grounds of nonstatutory obviousness-type double patenting as unpatentable over claims 1, 5, 6, 9, and 12-17 of US 7,507,866 (Final 2-3). (App. Br. 6.) The terminal disclaimer was not approved until May 28, 2010, i.e., after jurisdiction over the Appeal had passed to the Board. Therefore, we decline to reach this ground of rejection as it appears to have been obviated.

contend, (1) Antons teaches away from catalysts other than ruthenium in the production of optically active alcohols and carboxylic acids, and (2) the Examiner failed to properly take into account Appellants' evidence of nonobviousness. We determine the Examiner did not reversibly err for the reasons explained below.

Kitson claims

[a] process for the production from either a carboxylic acid or an anhydride thereof of the corresponding alcohol and/or carboxylic acid ester which process comprises reacting the carboxylic acid or anhydride thereof with hydrogen at elevated temperature in the presence as catalyst of a composition comprising an alloy of (i) at least one noble metal of Group VIII of the Periodic Table of the Elements, and (ii) at least one metal capable of alloying with the aforesaid Group VIII noble metal.

(Claim 1.) Kitson identifies “palladium, rhodium and ruthenium” as being the preferred noble metals. (Col. 2, ll. 43-44.) Kitson discloses that “[m]etals capable of alloying with palladium include silver, gold, copper, nickel, rhodium, tin, cobalt, aluminium, manganese, gallium, iron, chromium and platinum.” (Col. 2, ll. 44-47.) Kitson’s hydrogenation process is “operated at an elevated temperature in the range from 100° to 300° C” at a pressure less than 50 bar. (Col. 5, l. 67-col. 6, l. 2.)

The Examiner concedes that Kitson does not explicitly disclose the use of optically active carboxylic acids as starting materials or optically active final products (alcohols and carboxylic acids) as claimed by Appellants, but finds Kitson “do[es] not exclude or prohibit the optically active carboxylic acids and the alcohols” (Ans.⁵ 8). Appellants do not

⁵ Examiner’s Answer mailed Feb. 18, 2010.

dispute this finding. (*See generally*, Rep. Br. 1-3.) The Examiner further finds “Antons [] teaches a process of making optically active alcohols by reducing optically active carboxylic acids with hydrogen” (Ans. 8) at temperatures and pressures which overlap those used by Kitson (*see id.*).

The Examiner determines

[t]he [claimed] subject matter as a whole would be obvious to an ordinary skill [sic] in the art at the time of the invention as one of ordinary skill would have been motivated to use the alloy catalysts of Kitson[] to also make optically active alcohols from optically active carboxylic acids as taught by Antons.

(Ans. 8.)

Appellants argue Antons teaches away from using catalysts other than ruthenium in a process of reducing optically active carboxylic acids with hydrogen because such catalysts “may produce a racemate or may not even catalyze the reduction to the intended product.” (App. Br. 9.)

Antons discloses that at the time of Appellants’ invention, it was known that “[i]f ruthenium-containing catalysts are used . . . , the reduction demands relatively high temperatures and very high pressures, e.g. temperatures of 145° to 190° C. and pressures of 700 to 950 bar.” (Col. 1, ll. 23-27 (emphasis added).) According to Antons, “[s]uch processes are not suitable for the preparation of optically active alcohols because racemizations and degradation reactions take place under the drastic reaction conditions which have to be applied.” (Col. 1, ll. 27-30.) Antons’ process is said to “provide[] access to optically active alcohols in a simple manner, at relatively low temperatures and pressures, at low cost and with a high selectivity.” (Col. 3, ll. 11-13.) Antons specifically claims “[a] process

for the preparation of optically active alcohols, in which optically active carboxylic acids are reduced with hydrogen at temperatures below 160° C. and pressures below 250 bar, in the presence of ruthenium catalysts.”

(Claim 1.)

In support of their contention that Antons teaches away from catalysts other than ruthenium, Appellants direct us to col. 4, ll. 61-67 and col. 5, ll. 1-5 of Antons wherein two comparative examples are discussed. (App. Br. 9.) Antons’ Examples 1 and 8-10 and the Comparative Examples establish that under one specific set of reaction conditions (*see* col. 3, Example 1) the successful reduction of L-(+)-lactic acid to L-propane-1,2-diol was achieved using a ruthenium catalyst, but could not be accomplished using either a copper chromite catalyst or a Raney nickel catalyst.

Appellants also rely on evidence of unexpected results to establish non-obviousness. (App. Br. 10-11.) Appellants’ evidence consists of a single comparison of products obtained through “[t]he hydrogenation of L-alanine . . . in the presence of i) Ru-black, the catalyst according to Antons, and ii) on Pr/Sn-on-carbon [sic, Pt/Sn-on-carbon], which is a preferred embodiment of the claimed subject matter.” (App. Br. 10.)

In *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007), the Supreme Court rejected the idea that obviousness under § 103 can never be based on a showing that a combination was obvious to try, stating:

[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

Id. at 421.

To determine that an invention would have been obvious to try on the basis of the record before the time of invention, [the Federal Circuit] has clarified, with respect to inventions requiring selection of a species from a disclosed genus, that the possible approaches and selection to solve the problem must be “known and finite.”

Rolls-Royce, PLC v. United Techs. Corp., 603 F.3d 1325, 1339 (Fed. Cir. 2010) (citing *Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1351 (Fed. Cir. 2008)); *see also, PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1364 (Fed Cir. 2007) (explaining that an obviousness rejection predicated on selection of one or more components from numerous possible choices may be appropriate if the prior art provides direction as to which of many possible choices is likely to be successful).

In our view, the Examiner’s fact finding and reasoning is sufficient to support a *prima facie* case of obviousness. Kitson discloses a limited number of catalyst components and clearly directs one of ordinary skill in the art to select catalyst components which fall within Appellants’ claims, e.g., palladium combined with tin, iron, cobalt or gallium. (*See* Kitson col. 2, ll. 43-47 *supra* p. 3.) Antons discloses that optically active alcohols may be produced using similar process conditions as well as the same ruthenium catalyst used by Kitson. Although Antons focuses on the use of a ruthenium catalyst, we do not agree with Appellants’ contention that one of ordinary skill in the art, upon reading Antons, would have been discouraged from using other catalysts. To the contrary, we find the ordinary artisan would have found it obvious to try palladium and/or rhodium given Kitson’s

indication that these catalysts are suitable alternatives to ruthenium in reducing carboxylic acids to alcohols.

While we have considered Appellants' evidence of unexpected results, we are in agreement with the Examiner's determination that a preponderance of the evidence of record favors a conclusion of obviousness (Ans. 9). *See Sud-Chemie, Inc. v. Multisorb Techs., Inc.*, 554 F.3d 1001, 1009 (Fed. Cir. 2009) ("[E]vidence of unexpected results and other secondary considerations will not necessarily overcome a strong prima facie showing of obviousness"). As pointed out by the Examiner, Appellants' evidence is not commensurate in scope with the claims. *See In re Harris*, 409 F.3d 1339, 1344 (Fed. Cir. 2005) (explaining that a showing of unexpected results must be commensurate in scope with the degree of protection sought by the claimed subject matter). Appellants carried out the hydrogenations of a single optically active carboxylic acid in the presence of a ruthenium catalyst and a single catalyst within the scope of claim 1. Such limited comparison does not provide an adequate basis for reasonably concluding that the numerous catalysts and optically active carboxylic acids encompassed by claim 1 would behave in the same manner as those tested. *In re Lindner*, 457 F.2d 506, 509 (CCPA 1972) (agreeing with the Patent Office that there is no "adequate basis for reasonably concluding that the great number and variety of compositions included by the claims would behave in the same manner as the [single] tested composition.").

We are also in agreement with the Examiner that the evidence relied upon by Appellants is unreliable since it is not in the form of a declaration or an affidavit. As explained in *Ex parte Gray*, 10 USPQ2d 1922, 1928 (BPAI 1989), "[t]he reason for requiring evidence in declaration or affidavit form is

to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. § 25 and 18 U.S.C. § 1001.” *See also*, *C.R. Bard, Inc. v. Advanced Cardiovascular Sys., Inc.*, 911 F.2d 670, 674 n.2, (Fed. Cir. 1990) (attorney arguments are not evidence).

For the above-stated reasons, we sustain the rejection of claims 1-5 and 7-21 under 35 U.S.C. §103(a) as unpatentable over Kitson in view of Antons.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED